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The Determinants of Satisfaction with Educational Experience: How Universities and Community Colleges Differ

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Universities and community colleges clearly have different goals and missions, but how do these differences affect the experience of their students? While the extant literature is rich with studies on student satisfaction, little has been written about how universities and community colleges differ. This study analyzes data from a survey of enrolled students from Tennessee community colleges and universities. The results test prior research findings on the effects of college and offer explanations for differences between community colleges and universities in the determinants of satisfaction with educational experience.

THEORETICAL FRAMEWORK

This study draws heavily from the higher education literature to provide the theoretical underpinnings for satisfaction as it applies to demographic and situational characteristics of the students, including race, gender, full-time or part-time student, students older than 22, and students employed more than 20 hours per week. In addition to the studies focusing on community colleges, Pascarella and Terenzini (1991) cite many obstacles that African Americans and women face at predominantly white, coed institutions. African Americans are more likely to feel social isolation and personal dissatisfaction and women are less likely to benefit from women role models as men dominate the faculty and administration (Pascarella and Terenzini 1991, 380-4).

Michael Scott Cain presents an overview of the effects of community colleges in his book *The Community College in the Twenty-first Century*. His chapter on students is largely dedicated to non-traditional students, which is best reflected in the following text:

1. they are older, part-time students whose level of ability might be lower and who are likely to be predominantly female or a member of a minority.
2. Nontraditional students may or may not be interested in acquiring an associate's degree or moving beyond the two-year diploma.
3. the category generally includes members of the noncredit continuing education courses as well as those enrolled in formal grade-granting classes (Cain 1999, 81).

Cain argues that non-traditional students are better served by community colleges because there is truly something for everyone. He expands this line of thought by proposing the metaphor of community colleges as the Wal-Mart of higher education based on the image, convenient location, good quality, low prices, convenient hours, personal service, and pragmatism (Cain 1999, 1-8). While Cain recognizes that some may be offended by this metaphor, other scholars point to community colleges' distinct mission as a democratizing agent (Dougherty 1994), their orientation as "student-centered" (McGrath and Van Buskirk 1999), and their culture "aimed at transforming students into active, empowered participants in the educational process" (Shaw, Rhoads, and Valadez 1999).

Given these stark institutional differences between community colleges and universities, it is not surprising that students' social experience differs between institution type. Vincent Tinto (1988) attributes students' satisfaction with social experience to the degree to which they make a smooth transition from high school to college. One begins to see

the institutional distinctions immediately in Tinto's (1988) three stages of passage into college—separation, transition, and incorporation. This theory holds that the quicker a student is incorporated into the life of the college, the less likely they are to leave the institution, thus the more satisfied they are. So the question becomes, do universities or community colleges more effectively incorporate students into the life of the college.

Based on the Shaw, Rhoads, and Valadez (1999) study of community colleges as cultural texts and the McGrath and Van Buskirk (1999) article on community colleges' commitment to the student, it appears that community colleges better guide students through the transition process. However, Christie and Dinham (1991) suggest that universities may have the edge based on the increased opportunities for participation in extra-curricular activities. In fact, their study reveals that involvement in just one extra-curricular activity explicitly links them to their institution and increases their social integration (Christie and Dinham 1991, 421-422). To better resolve this question it is necessary to consider the work of other higher education scholars.

Alexander Astin (1993) outlines in his seminal work, *What Matters in College?*, all aspects of that question. This comprehensive compendium of the college experience addresses many issues surrounding student satisfaction and student development in college. Building on Astin's findings regarding student satisfaction, this paper applies some aspects of his

findings and provide the necessary data for studying the larger question—what are the differences in the determinants of satisfaction with educational experience between community colleges and universities?

Through statistical analysis of the Enrolled Student Survey, this study tests two of Astin's findings. First, his research includes a factor analysis of questions involving personality and self-concept, which yields six latent factors—social activist, scholar, artist, status striver, leader, and hedonist (Astin 1993, 107). The second finding by way of a separate factor analysis on student satisfaction with various aspects of the undergraduate experience shows five latent factors—relationships with faculty, curriculum and instruction, student life, individual support services, and facilities (Astin 1993, 275). Again, this study's data does not permit replication of all factors; however, the relationships with faculty and curriculum and instruction factors are directly applicable to the Enrolled Student Survey's group of questions on student experience in major field of study.

Aside from Astin's seminal work, two other studies provide a relevant framework for this paper—Michael Benjamin and Ann Hollings' article *Student Satisfaction: Test of an Ecological Model* and George Kuh and Shouping Hu's article *The Effects of Student-Faculty Interaction in the 1990's.* These studies offer more applicable approaches to consider students' self-image and academic satisfaction respectively.

Benjamin and Hollings' (1997) study presents a comprehensive (and complex) model for student satisfaction that reports satisfaction is directly related to positive self-image as one of their six major findings. Their concept of self-image offers a broader understanding of Astin's six factors of personality and self-concept. Based on the challenges of direct

replication to either study, this paper will draw primarily on Benjamin and Hollings' (1997) self-image concept for the sake of clarity.

Kuh and Hu's (2001) article broadens the concept of satisfaction with major field of study by focusing more intensely on student-faculty interaction. Their research shows that the more students interact with faculty the more satisfied they are. Students who often interact with faculty out-of-class on substantive and social bases report higher levels of satisfaction (Kuh and Hu 2001). This clarifies Astin's research, which focuses primarily on environmental factors surrounding student-faculty interaction, such as place of residence, institutional expenditures in student services, the percentage of students majoring in business fields, and peer SES (Astin 1993, 281-2).

RESEARCH HYPOTHESES

In order to adequately address the differences between community colleges and universities, this study tests four hypotheses based on the extant literature.

1. African Americans, women, part-time students, students who work more than 20 each week, and students older than 22 will have higher levels of satisfaction at community colleges than at universities.
2. Social and cultural experience will have a larger impact on satisfaction at universities than at community colleges.
3. The self-image of university students will explain more of the variance in satisfaction than the self-image of community college students.

4. Community college students' experience in their major field of study will explain more the variance in satisfaction than university students' experience in their major field of study.

METHODS

The data were collected from enrolled students at all public community colleges and universities in Tennessee's Board of Regents (TBR) and University of Tennessee (UT) systems. The Enrolled Student Survey is administered annually to randomly selected students at each institution. Its primary purpose is to assess students' educational experience and compare the results to similar institutions (i.e., community colleges to community colleges, research universities to research universities, etc.). To accomplish this purpose, a statistical test of means comparison is sufficient; however, this study will apply more advanced statistical measures to address the larger research question. While the bulk of the survey deals with academic related issues, there are a handful of social and cultural questions to account for the complete education experience. Additionally, the survey contains demographic and employment information that is useful for sociological study of this topic (see table 1).

The surveys were administered by each institution then the results were sent to the Tennessee Higher Education Commission for analysis. Because institutions submitted their data in different formats (e.g., MS Excel, MS access, SPSS), all data were combined into one SPSS data file. Most survey questions are ordinal on a four point scale, thus were given numeric values—1=poor, 2=fair, 3=good, 4=excellent. To clean the data, all values outside of the 1-4 range (or comparable scale) were coded as missing. Based on the low level of missing

values (less than three percent for all variables used in this study) and the low probability that the missing data in the independent variables depends on the dependent variable, missing cases were excluded using listwise deletion (Allison 2002).

Based on the research question's comparison of community colleges and universities it was necessary to create a new variable—institution type—by recoding all universities as 1 and as community colleges 2. The file remained split throughout the analysis to produce two outputs of each technique allowing for cross-comparison. Recoding was also necessary to create dummy variables for the ordinal logistic regression model. For race, recoding African American as 1 and all other values as 0 created the variable "black". For gender, female was coded 1 and male 0 (instead of 2). "Parttime" was created by recoding part-time status as 1 and full-time status as 0. "Older22" was created to identify students older than 22 at the time they completed the survey. "Emp20hrs" indicates that the student is employed more than 20 hours each week.

Finally, as suggested by many scholars (Alwin 1992; Kim and Mueller 1978), factor analysis is used in this study to reduce data and attain parsimony. The Enrolled Student Survey has two large sections of more than 10 questions in each that merit analysis to identify latent factors. The first section (question 6) deals primarily with skills and abilities enhanced by the institution. The second (question 7) is concerned with students' experience in their major field of study. Based on the fundamental assumption of factor analysis, that some underlying factors are responsible for the correlation among the observed variables, this method is used to explore whether self-image appears as a factor for question 6 and whether faculty-student interaction appears as a factor for question 7 (Kim and Mueller 1978, 12).

Logistic regression is the final method applied to test the determinants of satisfaction with educational experience. Due to the ordinal nature of the dependent variable, logistic regression is utilized instead of linear regression as linear regression assumes the dependent variable is measured on a continuous or interval scale (Peel et. al. 1998, 77).

ANALYTIC STRATEGIES

The research question of this project requires the application of a wide range of statistical techniques. Perhaps due to the primary purpose of the survey, the most basic statistical analysis offers the clearest picture of the differences between community colleges and universities. The comparison of means between these institutions presents a broad view of differences and helps to identify variables that merit further consideration.

Based on the work of Astin (1993) and Benjamin and Hollings (1997), this study includes a factor analysis of the skills and abilities listed in question 6 of the survey. To test the research hypothesis that the self-image of university students will explain more of the variance in satisfaction with educational experience it is first necessary to determine if self-image is a latent factor embedded in these questions. Furthermore, the factor analysis technique sufficiently tests for the presence of the other factors identified by Astin's study on personality and self-concept.

Similarly, Astin's (1993) and Kuh and Hu's (2001) studies are best tested and emulated by a factor analysis of the questions involving students' major field of study. In fact, their study provides a sound methodological approach to the question of student-faculty interaction. The authors' use of a pattern matrix (as opposed to a structure matrix) outlines a

logical means of reporting data in which the factors appear to be related to one another based on their high correlations (Kuh and Hu 2001). For the same reasons Kuh and Hu interpreted the pattern matrix this paper will rely on the same type factor loadings. To test Kuh and Hu's theory of student-faculty interaction, this study must first identify whether it is a latent factor in these questions.

It is also worth noting that in both factor analyses principle axis factoring extracting method with Oblimin rotation is used because of the study's assumption of an oblique structrue (Kim and Mueller 1978, 51). This method proves useful for analysis of question 6; however, question 7 only yielded one factor, so rotation was not necessary. Factors were extracted based on their eigenvalues as opposed a pre-determined number of factors due to the exploratory nature of the study. Factor loadings are analyzed from the pattern matrix in question 6 based primarily on Kuh and Hu's success in doing so and the high level of correlation between factors within each factor analysis. For question 7, factor loadings are taken from the factor matrix.

To consider the determinants of a satisfactory educational experience, this study uses ordinal logistic regression. Based on the ordinal nature of the data, logistic regression is more appropriate than linear methods (Pampel 2000, Peel et. al. 1998). Binary logistic regression could be used by dichotomizing the dependent variable to satisfied and dissatisfied; however, this study uses ordered logits because of the extremely low percentage of students indicating dissatisfaction (less than 10% for both institution types), which yield extremely low levels of variance explained in this dichotomous approach.

RESULTS

The results of the initial means comparisons of universities and community colleges seem to reject this study's second hypothesis that social and cultural experience of university students would have a larger impact on overall satisfaction. In fact, community colleges scored overwhelmingly better than universities across all questions. Of the 57 survey questions 47 were statistically significant at the .05 level and only 14 of 47 statistically significant means differences were in the favor of universities (11 of the 14 were questions regarding how often services were used rather than quality of experience). Community colleges scored higher on academic, social, cultural, and overall experience. Community colleges also scored higher on practical skills questions relating to preparation for employment, understanding and applying mathematical and scientific concepts, and applying concepts in another setting. The final area of means comparison that merits attention is satisfaction in major field of study. Community colleges scored higher in terms of faculty availability, practicality of major, and quality of information. However, before jumping to conclusions as to whether or not to reject the hypotheses based on means comparisons, it is necessary to point out that a statistically significant difference of means does not address the degree to which each variable impacts the ultimate research question—satisfaction with educational experience. See table 1 for survey results.

The factor analysis for abilities and skills (question 6) is promising based on the correlation coefficient values. The high level of correlation of all variables indicates that none of them need to be eliminated. This is also an indication that this is not an identity matrix,

which is confirmed by Bartlett's test of sphericity significance level of $p < .001$. While the last four questions have the lowest degree of correlation, eliminating them from the factor analysis model reduces the number of factors from three to one, which goes against this study's exploratory nature. In fact, the structure matrix shows that one of the three factors relies almost entirely on this last group of questions.

The communalities reported in table 2 are similar for universities and community colleges. Some discrete differences can be seen, such as the higher level of variance explained by a latent factor among community colleges for the abilities to grow and lead and self-confidence. Also, only 7 of the 19 questions have higher levels of variance explained by latent factors for universities.

However, the factor loadings as seen on the pattern matrix are quite different between universities and community colleges. At least for the first factor (self-image), the results are close between institution type. The main difference is that the slightly higher factor loadings from the community colleges. However, this cannot be interpreted as rejecting the research hypothesis that university students' self-image would explain more of the variance in satisfaction because the factor loadings simply illustrate how reliant the questions are on the self-image factor. This factor is labeled self-image based primarily on the high factor loadings for the questions: Q6.3. ability to grow; Q6.4. ability to lead; Q6.5. self-confidence, Q6.7. Planning projects, and Q6.8. speaking effectively.

The next factor appears to be different depending on institution type. The university factor loadings are highest for the questions that deal with academic interests, which explain the scholar label. However, the community college factor loadings are all negative for

diversity and group related questions, which explain the anti-social label. Interestingly, both of these factors appear in Astin's (1993) work on personality and self-concept although his anti-social factor is titled hedonist. Unfortunately, the Enrolled Student Data does not have the number and range of questions to adequately identify it as such. This factor suggests that students at both universities and community colleges may have limited abilities interacting with others, but show sufficient ability in working on their own.

The final factor is similar to Astin's social activist factor based on the extremely high loadings for Q6.2. getting along with other races, Q6.6. appreciation of other cultures, and Q6.17. understanding global environmental concerns. As seen in the self-image factor, all the factor loadings have values greater than .3 indicating that the variance in all questions is explained by these two latent factors. Additionally, these two factors are highly correlated both at the university level (.661) and community college level (.686). However, the self-image factor has a much higher eigenvalue (above 7 at both institution types) than both the social activist factor and scholar / anti-social factor (below 1.5 at both institution types). Therefore, the primary finding of the factor analysis on question 6 is that self-image is definitely a latent factor among these questions.

The results from the correlation table for all questions relating to major (question 7) illustrates that there is high correlation between all variables. As discussed in the results for question 6, this indicates that all items should be included in the factor analysis. The correlation levels also suggest that this is not an identity matrix and Bartlett's test proves this at the $p < .001$ level.

The communalities reported in table 5 are significantly higher among community colleges. This may appear to suggest that community college students have a better experience in their major field of study; however, these values simply indicate that more of the variance in these items is explained by a latent factor at the community college level than at the university level.

The factor scores are also significantly higher at the community college level. This is explained best by the latent factor of curriculum and instruction. This study expected to find a student-faculty interaction factor based on the findings of Kuh and Hu (2001) and Astin (1993). However, the factor loadings for the questions that best match this factor—Q7.1. Availability of advisor and Q7.7. Availability of faculty to help students outside of class—are among the lowest of the 10 questions. Astin (1993) does discuss the importance of curriculum and instruction, but does not find it as a significant determinant of student satisfaction. Nevertheless, the title still seems appropriate for this factor analysis based on the high loadings for Q7.8. Quality of instruction in major and Q7.4 Clarity of objectives for courses. The fact that community colleges have higher factor loadings is best explained by the literature stating that students attending community colleges are more likely to have an end goal in mind, which translates to the clarity of programs. Based on this information, it makes sense that so much of the variance in these questions is explained by curriculum and instruction because this is the primary goal of community college students, whereas university students attend for a wider variety of reasons.

The ordinal logistic regression results reported on table 7 presents the most complete picture of the research question—how determinants of satisfaction differs from universities to

community colleges. The previous factor analyses were necessary to reduce the data into a more manageable number of independent variables. The four factors—self-image, scholar / anti-social, social activist, and curriculum / instruction—are included in the regression analysis along with three categories of experience—academic, social, and cultural—and five dummy variables—gender, part-time status, employment status, race, and age. The regression analysis is the only method that adequately tests the hypotheses that consider to what extent the independent variables explain the variance in satisfaction between institution type.

Before reporting the results, it is first necessary to state a few limitations with the ordinal regression method. The information presented in table 7 includes both logits and odds ratios, which are calculated with the "very satisfied" group as the default denominator and the three other levels of satisfaction in the numerator. Therefore, when interpreting the odds ratios it should be noted that one unit of increase in the independent variables should influence the odds of affecting the dependent variable outcome that one would be "very satisfied." While at first glance this appears to be more complex than necessary (why not dichotomize the dependent variable?), given that less than 7% of respondents indicated dissatisfaction, ordinal logistic regression is the most appropriate method for this study.

Another note of caution is that the test for parallel lines and goodness-of-fit tests for both institution types show that these models are significantly different from a model of good fit. This is attributable mainly to the data problems mentioned above. With more than 73% of respondents choosing "satisfied" for the dependent variable at the university level and 63% at the community college level, it is to be expected that the lines for "very dissatisfied," "dissatisfied," and "satisfied" would be significantly different. Recognizing these limitations,

this study continues with the ordinal logistic method because the data problem will only lead to greater problems with other methods. Furthermore, using “very satisfied” as the default presents the clearest effects of the independent variables on satisfaction with educational experience.

The penultimate result of the ordinal regression shows that this model explains more of the variance at the university level (Pseudo R-square =.303) than the community college level (Pseudo R-square =.203). While part of this can be attributed to the larger sample size for universities, the chi-square statistic shows that there is more variance in the response scores at the university level. The chi-square of community colleges in nearly half the value for universities and the sample size for community colleges is almost 70% that of universities.

The most important outcomes from the regression analysis are the effects of the independent variables. In both institution types all three experience variables are statistically significant with academic experience having almost four times the effect of any other variable for community colleges and nearly six times the effect of any other variable for universities. Social experience is significant at the .001 level for universities and at the .05 level for community colleges, which along with the higher odds ratio suggests that hypothesis two of this study is validated. However, cultural experience has a slightly stronger effect for community colleges, which goes against that hypothesis. More attention to this discrepancy is given in the discussion section.

The four factors have the same direction of effect for both institution type; however, the scholar / anti-social factor is significant at the .05 level for community colleges and not significant for universities. Self-image and curriculum / instruction both have strong positive

effects on satisfaction with a strong impact at the university level. Interestingly, the scholar / anti-social and social activist factors both have a negative effect at both institution types. Perhaps, the scholars / anti-socials think too much emphasis is placed on non-academic experience or at least more emphasis then than they thought before attending. The social activists may be disappointed in the dearth of people taking up their issues and frustrated that diversity and environmental issues are not more explicitly addressed at the post-secondary level. While both of these rationales are simply speculations, a more important finding is that the same effect occurs at both community colleges and universities indicating that these factors do not effect satisfaction differently by institution type.

The five dummy variables' effects offer the most distinct differences on satisfaction between university and community college students. The only variable that effects satisfaction in the same direction (negative) is age. This suggests that students older than 22 are less likely to be very satisfied with their educational experience. Another important finding is that part-time students are more likely to be very satisfied at the university level. This variable is the only statistically significant ($p < .001$) item among all dummy variables. Aside from these two differences the most significant finding is that four of the five variables effect satisfaction in opposite directions.

The most striking rejection of this study's hypotheses is that females, African Americans, part-time students, students employed more than 20 hours per week, and students older than 22 years of age would have higher levels of satisfaction at community colleges. In fact, each of these characteristics has a negative influence on satisfaction with educational experience at the community college level and all variables with the exception of age have a

positive influence on satisfaction for university students. So, it appears that the opposite is true—the above characteristics yield higher levels of satisfaction among university students. This finding is addresses more fully in the discussion section.

Before jumping to definitive conclusions it should be noted that these variables had very little effect in either direction for both institution types. Race and employment had virtually no effect at the university level with odds ratios of 1.003 and 1.002 respectively. Furthermore, part-time status at the university level was the only logit coefficient above |.1|. These values suggest the overall influence of the dummy variables is limited at best. In fact, when the regression is run without these variables the number of significant independent variables does not change and the pseudo R-square value remains the same for universities and even increases by .008 for community colleges. This suggests that particularly for community colleges the dummy variables are superfluous to the model; however, this study retains them to better identify and explain the difference in determinants of satisfaction by institution type.

DISCUSSION

This study applies many theoretical assumptions based on satisfaction and community college literature and attempts to abide by many methodological assumptions in the selected analytic strategies. In testing these assumptions, four hypotheses guided which research questions and methods would be explored further. Following is an examination of each hypothesis.

Number One: African Americans, women, part-time students, students who work more than 20 each week, and students older than 22 will have higher levels of satisfaction at community colleges than at universities. The results of this study clearly suggest the rejection of this hypothesis. As reported in the results section, regression analysis shows that university students with these characteristics are more satisfied. Perhaps the more important implication of this study is that these characteristics matter very little. Sure, there is a negative effect at the community college level and positive effect at the university level, but these effects are minimal. Given these variables slight impact, perhaps the negative effect at community colleges is based on students' expectations not being met. The community college literature often refers to these institutions as the people's colleges and trumpet their "open door" mission as having something for everyone (Dougherty 1994; Cain 1999). Perhaps students with the above characteristics expected a more positive experience at institutions that pride themselves on serving people like them. Expectations may also explain these students' experiences at universities, where they may have expected a lower level of satisfaction. This rationale would explain the experience of part-time students who are 37% more likely to report being "very satisfied" with their educational experience.

Number Two: Social and cultural experience will have a larger impact on satisfaction at universities than at community colleges. Essentially, this hypothesis is split. University students' social experiences are significant at a higher level than community college students, and an increase in social experience at the university level is more likely to lead to an increase in satisfaction than at the community college level. This finding supports the hypothesis and

is possibly based on the higher level of emphasis placed on social experience at four-year institutions. Perhaps this is a result of the wide array of extra-curricular activities offered at four-year institutions. Scholars suggest that involvement in just one extra-curricular activity explicitly links them to their institution and increases their social integration (Christie and Dinham 1991). With regard to cultural experience, its effect is slightly higher at the community college level, which the literature suggests is attributable to community colleges' emphasis of providing something for everyone (Cain 1999).

One variable not covered in this hypothesis (or the other three), but certainly worth consideration is academic experience. Regardless of institution type, academic experience has the largest effect on satisfaction. In fact, the simple means comparisons in table 1 show that the difference in academic experience between universities and community colleges best reflected the differences in satisfaction (question 1).

Number Three: The self-image of university students will explain more of the variance in satisfaction than the self-image of community college students. This hypothesis is supported both in the literature and by the regression analysis results of this study. The self-image factor had high eigenvalues and is highly significant at both the university and community college level indicating that this latent factor clearly affects students' satisfaction with educational experience. The odds ratios show that university students' self-image has a larger effect and explains more of the variance than at the community college level. Therefore, it can be inferred that university students with a positive self-image are more likely to be satisfied than community college student with the same self-image. This may suggest that the university

experience requires a more confident, secure student. On the other hand, in light of the statistically significant scholar / anti-social factor at the community college level, a positive self-image may be less common thereby not affecting satisfaction as strongly or explain as much of the variance.

Number Four: Community college students' experience in their major field of study will explain more the variance in satisfaction than university students' experience in their major field of study. This hypothesis cannot be definitively accepted or rejected. The ordinal logistic regression results show that the logits and odds ratios are higher for universities than community colleges; however, the factor analysis reports much higher factor scores and loadings among community colleges. While the factor analysis considers presence of a latent factor among 10 questions dealing with students' experience in their major, the results do not necessarily report how this factor affects satisfaction. So the strength of the factor undergirding the 10 questions dealing with major experience is stronger at the community college level, but its effect on satisfaction is slightly less than the effect at the university level. For both institution types the factor is significant at the $p < .001$ level, and the effect produces odds ratios of 1.613 for universities and 1.47 for community colleges. These results suggest that the curriculum / instruction factor explains more of the variance at the university level, but the factor is stronger among community college students. This could be attributed again to expectations.

It is clear that community college students are expecting a positive experience with curriculum / instruction based on the high communalities and factor loadings, but this factor

may not be as strong of a determinant because there is so little variance in students' responses. As Cain (1999) suggests, community college students arrive on campus knowing what type of educational experience they want, so curriculum / instruction could be considered to be a given. This is less likely to be the case for university students; therefore, it follows that the curriculum / instruction factor explains a bit more of the variance at the university level.

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Table 1: Means Comparison

2001 Enrolled Student Survey results for Universities and Community Colleges

		All 2-year			All 4-year				
		Mean	N	s	**Mean**	**N**	**s**	S.E.	z
1. How satisfied are you with the educational experience you have received? 1=very dissatisfied, 2=dissatisfied, 3=satisfied, 4=very satisfied	***	3.21	10410	0.65	**3.07**	**13317**	**0.56**	0.0080	18.66
2. If you could start college again, would you enroll at the same instiution? 1=definitely not, 2=probably not, 3=probably yes, 4=definitely yes	***	3.19	10307	0.72	**2.88**	**13325**	**0.80**	0.0099	31.91
3. How would you rate the following aspects of your university experience? 1=poor, 2=fair, 3=good, 4=excellent									
academic experience	***	3.13	10541	0.62	**2.91**	**13551**	**0.66**	0.0083	27.04
social experience	*	2.88	10524	0.76	**2.85**	**13536**	**0.83**	0.0102	2.22
cultural experience	***	2.68	10501	0.77	**2.52**	**13532**	**0.82**	0.0103	15.38
overall experience	***	3.08	10529	0.60	**2.90**	**13541**	**0.65**	0.0081	22.71
4. While attending your institution, how often would you say you did each of the following? 1=never, 2=seldom, 3=occasionally, 4=often									
used written reference materials		3.17	10499	0.80	**3.18**	**13539**	**0.78**	0.0102	-0.78
completed a paper/project that integrated ideas from several sources	***	3.28	10515	0.78	**3.34**	**13550**	**0.73**	0.0099	-6.63
applied concept/technique you learned in another setting	***	3.24	10480	0.73	**3.29**	**13524**	**0.72**	0.0095	-5.93
used on-line library database	***	2.74	10479	1.04	**2.87**	**13472**	**0.98**	0.0132	-10.56
tried to explain a method/theory to another person	***	2.92	10494	0.83	**3.08**	**13511**	**0.79**	0.0106	-14.81

used internet in classroom assignments	***	3.17	10514	0.93	**3.43**	**13535**	**0.78**	0.0113	-22.99
5. Please indicate if you used any of the following services while at your institution, and rate your overall satisfaction with each.									
1=n/a, 2=used									
library facilities / services	***	1.86	9809	0.35	**1.95**	**13062**	**0.22**	0.0040	-22.47
registration services	***	1.95	9641	0.21	**1.98**	**12998**	**0.15**	0.0025	-9.65
financial aid services	***	1.54	9886	0.50	**1.63**	**13084**	**0.48**	0.0066	-13.47
computer facilities / services	***	1.84	9663	0.36	**1.90**	**12999**	**0.29**	0.0045	-13.35
advising services	***	1.74	9669	0.44	**1.87**	**12944**	**0.34**	0.0054	-24.63
practicum/intern/service learning experience	***	1.26	9931	0.44	**1.28**	**13133**	**0.45**	0.0059	-3.49
1=poor, 2=fair, 3=good, 4=excellent									
library facilities / services	***	3.11	9124	0.70	**3.02**	**12870**	**0.76**	0.0100	8.71
registration services	***	2.92	9998	0.75	**2.76**	**13195**	**0.84**	0.0105	15.86
financial aid services	***	2.97	5864	0.90	**2.57**	**8568**	**0.95**	0.0156	26.14
computer facilities / services	***	3.16	8863	0.68	**2.90**	**12187**	**0.77**	0.0100	25.62
advising services	***	2.86	7830	0.88	**2.58**	**11731**	**0.94**	0.0132	21.63
practicum/intern/service learning experience	***	3.02	2826	0.76	**2.82**	**4178**	**0.87**	0.0197	10.12
6. In answering the questions below, please think of your overall experience at your institution. Indicate the degree to which your education added to your abilities in each of the following areas.									

1=very little, 2=somewhat, 3=very much										
practical skills necessary to obtain employment in your field	***	2.31	10484	0.66	**2.33**	**13461**	**0.65**	0.0086	-3.05
getting along with people of different races or ethnic groups	***	2.26	10466	0.72	**2.20**	**13483**	**0.72**	0.0094	6.33
ability to grow and learn as a person	***	2.51	10480	0.58	**2.47**	**13479**	**0.61**	0.0077	5.38
ability to lead or guide others		2.23	10471	0.65	**2.23**	**13485**	**0.66**	0.0086	-0.83
self-confidence in expressing your ideas	***	2.36	10478	0.63	**2.31**	**13475**	**0.66**	0.0084	6.47
appreciation of different cultures	***	2.19	10446	0.70	**2.14**	**13457**	**0.72**	0.0092	6.20
planning and carrying out projects		2.38	10458	0.62	**2.37**	**13474**	**0.64**	0.0082	1.03
speaking effectively	***	2.30	10399	0.66	**2.21**	**13482**	**0.68**	0.0087	9.97
writing effectively	***	2.40	10438	0.63	**2.32**	**13479**	**0.65**	0.0083	8.86
understanding written information	***	2.41	10463	0.61	**2.37**	**13462**	**0.62**	0.0080	4.60
understanding graphic information		2.18	10457	0.74	**2.18**	**13477**	**0.70**	0.0094	0.05
ability to use infromation/computer technology	***	2.43	10451	0.66	**2.39**	**13477**	**0.68**	0.0087	3.90
learning on your own		2.49	10471	0.60	**2.49**	**13484**	**0.62**	0.0080	-0.32
defining and solving problems	**	2.37	10464	0.61	**2.34**	**13476**	**0.62**	0.0081	3.24
working cooperatively in a group	***	2.40	10449	0.65	**2.36**	**13449**	**0.66**	0.0086	4.30
ability to understand mathematical concepts	***	2.22	10449	0.70	**2.06**	**13438**	**0.73**	0.0093	17.45
understanding global environmental concerns	***	1.90	10435	0.73	**1.86**	**13436**	**0.74**	0.0096	3.51
understanding/appreciating the arts		1.94	10442	0.76	**1.93**	**13453**	**0.75**	0.0098	1.17
understanding/applying scientific principles and methods		2.05	10008	0.73	**2.06**	**13456**	**0.72**	0.0096	-1.48
7. Thinking about your major, please rate the quality of each item below.									
1=poor, 2=fair, 3=good, 4=excellent									
availability of your faculty advisor		2.87	10260	0.93	**2.87**	**13383**	**0.96**	0.0123	0.19
quality of information provided by your advisor	**	2.87	10225	0.93	**2.80**	**13370**	**0.98**	0.0126	4.83

	*								
clarity of degree requirements in the major		2.96	10275	0.87	**2.95**	**13378**	**0.88**	0.0115	0.96
clarity of objectives for courses in the major	***	2.99	10267	0.82	**2.95**	**13350**	**0.83**	0.0108	3.65
opportunities for student evaluation of instruction	***	2.93	10263	0.88	**2.84**	**13340**	**0.87**	0.0115	7.89
availability of faculty to help students outside of class	***	2.99	10263	0.84	**2.90**	**13355**	**0.86**	0.0111	7.79
quality of courses to prepare you for employment	***	3.00	10247	0.82	**2.89**	**13348**	**0.84**	0.0109	10.28
quality of instruction in the major		3.06	10253	0.80	**3.05**	**13306**	**0.80**	0.0105	0.88
opportunities to express ideas in writing in the major	***	2.85	10227	0.82	**2.76**	**13314**	**0.86**	0.0110	7.79
usefulness of information learned in class in day-to-day activities	***	3.06	10293	0.77	**2.93**	**13363**	**0.82**	0.0104	12.71
8. With how many faculty members hgve you developed a close relationship? 1=none, 2=one, 3=two, 4=three or more	***	1.34	10357	0.66	**2.80**	**13478**	**1.09**	0.0114	-127.95
9. If you could choose your major again, would you select the same major? 1=definitely no, 2=probably no, 3=probably yes, 4=definitely yes	***	3.26	10382	0.76	**3.18**	**13424**	**0.85**	0.0104	7.61
10. Overall, how satisfied are you with the climate of diversity? 1=very dissatisfied, 2=dissatisfied, 3=satisfied, 4=very satisfied	***	3.12	10456	0.56	**2.93**	**13437**	**0.64**	0.0078	24.22
11. Do you think your high school adequately prepared you for college work? 1=definitely not, 2=probably not, 3=probably yes, 4=definitely yes	***	2.77	10458	0.93	**2.85**	**13458**	**0.99**	0.0124	-6.74

** indicates statistical significance at the .05 level, ** indicates statistical significance at the .01 level, *** indicates statistical significance at the .001 level.*

DEMOGRAPHIC INFORMATION

	University	Community College
Gender		
Female	56.0%	62.6%
Male	44.0%	37.4%
Age		
Under 22	48.2%	49.5%
22-24	29.7%	14.6%
25-30	12.3%	15.1%
31-45	8.2%	16.9%
46-60	1.5%	3.6%
over 60	0.1%	0.3%
Race / ethnic group		
Caucasian	75.3%	79.6%
African American	17.4%	13.6%
Asian American / Pacific Islander	2.3%	1.7%
Hispanic / Latino	1.5%	0.9%
Native American / American Indian	0.6%	1.2%
Other (American mix, multi-ethnic, etc.)	3.0%	2.9%
Full or part time		
Full-time	91.5%	67.6%
Part-time	8.5%	32.4%
Hours to work per week		
Not employed	25.6%	18.2%
Employed fewer than 10 hours per week	9.3%	4.0%
10-19 hours	20.5%	14.4%
20-29 hours	24.1%	23.4%
30-40 hours	14.1%	26.4%
more than 40 hours	6.4%	13.6%
Credit hours earned at institution		
Fewer than 12 credit hours	5.9%	19.9%
12 to 24 credit hours	14.1%	29.2%
25 to 59 credit hours	23.1%	34.7%
60 to 89 credit hours	26.4%	13.1%
90 or more credit hours	30.5%	3.2%
Hours to prepare for courses		
None	0.9%	1.5%
1 to 5 hours	32.8%	51.5%
6 to 10 hours	34.5%	27.6%
11 to 15 hours	16.4%	10.9%
16 to 20 hours	9.1%	4.6%
More than 20 hours per week	6.3%	3.8%

Table 2: Skills and Abilities Factor Analysis

Communalities

	Universities	Community Colleges
Q6.1:practical skills to obtain employment	**0.240**	**0.236**
Q6.2:Getting along different races	0.460	0.501
Q6.3:Ability to grow	0.481	0.528
Q6.4:Ability to lead	0.492	0.521
Q6.5:Self-confidence	0.492	0.507
Q6.6:Appreciation of cultures	**0.626**	**0.594**
Q6.7:Planning projects	0.475	0.488
Q6.8:Speaking effectively	**0.470**	**0.458**
Q6.9:Writing effectively	0.372	0.404
Q6.10:Understanding written	0.526	0.582
Q6.11:Understanding graphic	**0.507**	**0.427**
Q6.12:Ability to use information	**0.389**	**0.344**
Q6.13:Learning on your own	0.339	0.416
Q6.14:Defining and solving problems	**0.590**	**0.581**
Q6.15:Working cooperatively in a group	0.420	0.457
Q6.16:Ability to understand mathematical	**0.445**	**0.365**
Q6.17:Understanding global environmental concerns	0.440	0.645
Q6.18:Understanding the arts	0.324	0.488
Q6.19:Understanding scientific principles	0.487	0.501

Extraction Method: Principal Axis Factoring.

Boldface type indicates variables in which Universities' values explain more of the variance

Table 3: Skills and Abilities Factor Analysis

Structure Matrix

	Self-image		Scholar / Anti-social		Social Activist	
	Univ.	C.C.	Univ.	C.C.	Univ.	C.C.
Q6.1:practical skills to obtain employment	0.487	0.478			0.301	0.351
Q6.2:Getting along different races	0.499	0.549		-0.553	0.662	0.489
Q6.3:Ability to grow	0.658	0.671		-0.459	0.560	0.437
Q6.4:Ability to lead	0.674	0.668		-0.445	0.534	0.501
Q6.5:Self-confidence	0.670	0.683			0.533	0.459
Q6.6:Appreciation of cultures	0.510	0.599		-0.570	0.779	0.581
Q6.7:Planning projects	0.689	0.694			0.451	0.477
Q6.8:Speaking effectively	0.670	0.674			0.481	0.457
Q6.9:Writing effectively	0.606	0.633			0.414	0.411
Q6.10:Understanding written	0.723	0.757			0.471	0.509
Q6.11:Understanding graphic	0.646	0.611	0.473		0.422	0.554
Q6.12:Ability to use information	0.596	0.578	0.347		0.368	0.449
Q6.13:Learning on your own	0.572	0.641			0.346	0.413
Q6.14:Defining and solving problems	0.730	0.751	0.437		0.439	0.552
Q6.15:Working cooperatively in a group	0.646	0.658		-0.322	0.463	0.493
Q6.16:Ability to understand mathematical	0.493	0.545	0.566		0.356	0.517
Q6.17:Understanding global environmental concerns	0.438	0.536	0.364		0.594	0.802
Q6.18:Understanding the arts	0.408	0.472			0.556	0.693
Q6.19:Understanding scientific principles	0.489	0.535	0.585		0.426	0.694

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

Note: Factor loadings less than |.3| are not included.

Table 4: Skills and Abilities Factor Analysis

Factor Score Coefficient Matrix

	Self-image		Scholar / Anti-social		Social Activist	
	4-year	2-year	4-year	2-year	4-year	2-year
Q9.1:practical skills to obtain employment	0.055	0.042	0.016	-0.031	-0.003	0.013
Q9.2:Getting along different races	0.031	0.028	-0.094	-0.301	0.183	0.045
Q9.3:Ability to grow	0.101	0.095	-0.116	-0.216	0.089	-0.023
Q9.4:Ability to lead	0.111	0.077	-0.126	-0.205	0.068	0.017
Q9.5:Self-confidence	0.111	0.094	-0.136	-0.139	0.064	-0.012
Q9.6:Appreciation of cultures	0.023	0.030	-0.174	-0.380	0.403	0.107
Q9.7:Planning projects	0.121	0.104	-0.017	-0.039	-0.002	0.002
Q9.8:Speaking effectively	0.118	0.100	-0.109	-0.024	0.036	-0.001
Q9.9:Writing effectively	0.080	0.085	-0.046	0.043	0.014	-0.005
Q9.10:Understanding written	0.135	0.164	0.026	0.136	0.001	0.010
Q9.11:Understanding graphic	0.085	0.073	0.216	0.132	0.005	0.089
Q9.12:Ability to use information	0.079	0.073	0.102	0.067	-0.012	0.037
Q9.13:Learning on your own	0.066	0.091	0.046	0.056	-0.012	-0.005
Q9.14:Defining and solving problems	0.147	0.156	0.200	0.163	-0.029	0.053
Q9.15:Working cooperatively in a group	0.086	0.076	0.008	-0.084	0.029	0.021
Q9.16:Ability to understand mathematical	0.037	0.060	0.283	0.137	0.019	0.082
Q9.17:Understanding global environmental concerns	-0.003	0.005	0.172	0.048	0.197	0.380
Q9.18:Understanding the arts	0.007	0.000	0.046	-0.016	0.144	0.211
Q9.19:Understanding scientific principles	0.025	0.038	0.329	0.143	0.081	0.219

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.
Factor Scores Method: Regression.

Table 5: Experience in Major Field of Study Factor Analysis

Communalities

	Unviersities	Community Colleges
Q7.1:Availability of advisor	0.436	0.549
Q7.2:Quality of information	0.469	0.590
Q7.3:Clarity of degree requirements	0.512	0.612
Q7.4:Clarity of objectives for courses	0.603	0.667
Q7.5:Opportunities for student evaluation	0.448	0.491
Q7.6:Availability of faculty to help students outside	0.506	0.507
Q7.7:Quality of courses to prepare for employment	0.562	0.653
Q7.8:Quality of instruction in the major	0.597	0.672
Q7.9:Opportunities to express ideas in writing	0.429	0.552
Q7.10:Usefulness of information learned in class	0.514	0.585

Extraction Method: Principal Axis Factoring.

Table 6: Experience in Major Field of Study Factor Analysis

Factor Matrix

	Curriculum / Instruction	
	Univ.	C.C.
Q7.1:Availability of advisor	0.660	0.741
Q7.2:Quality of information	0.685	0.768
Q7.3:Clarity of degree requirements	0.716	0.783
Q7.4:Clarity of objectives for courses	0.776	0.817
Q7.5:Opportunities for student evaluation	0.669	0.701
Q7.6:Availability of faculty to help students outside	0.711	0.712
Q7.7:Quality of courses to prepare for employment	0.750	0.808
Q7.8:Quality of instruction in the major	0.773	0.820
Q7.9:Opportunities to express ideas in writing	0.655	0.743
Q7.10:Usefulness of information learned in class	0.717	0.765

Extraction Method: Principal Axis Factoring.

Table 7

Ordinal Logistic Regression

	Universities		Community Colleges	
	Estimate	Exp(B)	Estimate	Exp(B)
Academic Experience	2.110 **	8.248	1.543 **	4.679
Social Experience	0.222 **	1.249	0.091 *	1.095
Cultural Experience	0.160 **	1.174	0.215 **	1.240
Self-image (factor)	0.342 **	1.408	0.252 **	1.287
Scholar / Anti-Social (factor)	-0.042	0.959	-0.099 *	0.906
Social Activist (factor)	-0.060	0.942	-0.040	0.961
Curriculum / Instruction (factor)	0.478 **	1.613	0.385 **	1.470
FEMALE	0.052	1.053	-0.040	0.961
PARTTIME	0.315 **	1.370	-0.048	0.953
EMP20HRS	0.002	1.002	-0.076	0.927
BLACK	0.003	1.003	-0.030	0.970
OLDER22	-0.094	0.910	-0.023	0.977
n	11514		7994	
-2 Log L (intercept)	17845.012		13388.300	
-2 Log L (final)	12443.292		10673.652	
Chi-square	5401.721		2714.648	
Pseudo R-square	0.303		0.203	

Dependent variable: Satisfaction with educational experience

* Significant at the .05 level

** Significant at the .001 level

Figure 1: Model of Student Satisfaction